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Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Revision of the Commission's Rules	)	
To Ensure Compatibility with	)	CC Docket No. 94-102
Enhanced 911 Emergency Calling Systems	)	
	)	

CUSTER TELEPHONE COOPERATIVE'S IMPLEMENTATION REPORT

Pursuant to the Fourth Memorandum Opinion and Order issued by the Federal Communications Commission in *Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, released September 8, 2000, Custer Telephone Cooperative ("Custer") submits the following implementation report regarding the provision of phase II E911 services.

Background/ Contact Information

(1) Carrier Identifying Information

TRS ID	Legal Name of Carrier
806388	Custer Telephone Cooperative, Inc.

(2) Contact Information

Questions regarding this report should be directed to:

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E911 Phase II Location Technology Information

Custer Telephone Cooperative ("Custer") is a new wireless service provider serving a previously unserved area in Custer County, Idaho. There is currently no PSAP in the area in which Custer provides service, and all 911 calls are routed to the local sheriff's office.

Custer owns and operates two cell sites and has a contract with United States Cellular Corporation ("USCC") to deliver wireless service, including phase I and phase II E911 service, to its customers. Consequently, Custer's technology solution and implementation plan for phase II E911 location information is inextricably tied to the plan adopted by USCC. Therefore, Custer hereby adopts and incorporates the implementation report submitted by USCC in the above referenced matter as Custer's plan for achieving compliance with the FCC's phase II implementation requirements. A copy of USCC's filing is attached hereto for convenience.

Respectfully submitted,

Dennis Thornock

Dennis Thornock
General Manager
Custer Telephone Cooperative

November 9, 2000

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Revision of the Commission's Rules	)	
To Ensure Compatibility with	)	CC Docket No. 94-102
Enhanced 911 Emergency Calling Systems	)	
	)	

UNITED STATES CELLULAR CORPORATION'S
IMPLEMENTATION REPORT

Pursuant to the Fourth Memorandum Opinion and Order issued by the Federal Communications Commission in *Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, released September 8, 2000, United States Cellular Corporation ("USCC") submits the following implementation report regarding the provision of phase II E911 services.

Background/ Contact Information

(1) Carrier Identifying Information

TRS ID	Legal Name of Carrier
802647	Bangor Cellular Telephone, L.P.
802608	California Rural Service Area 1, Inc.
802641	Canton Cellular Telephone Company (IL)
802644	Cedar Rapids Cellular Telephone, L.P.
802836	Central Florida Cellular Telephone Company, Inc.
802658	Charlottesville MSA Limited Partnership
802776	Crook County RSA Limited Partnership
802638	Davenport Cellular Telephone Company
802743	Dubuque Cellular Telephone, L.P.
817220	Evansville Cellular Telephone Company (for Appleton WI)
802746	Farmers Cellular Telephone Company, Inc.
802596	Florida RSA #8, Inc.
802601	Georgia RSA #11, Inc.
802713	Georgia RSA #13, Inc. (For WV7)
817222	Green Bay Cell Telephone Co.

802614	Hardy Cellular Telephone Company
802585	Illinois RSA #3, Inc.
802824	Indiana RSA No. 4 Limited Partnership
802821	Indiana RSA No. 5 Limited Partnership
802695	Iowa 13, Inc.
802755	Iowa RSA No. 12 Limited Partnership
802749	Iowa RSA No. 9 Limited Partnership
818126	Jacksonville Cellular Telephone Co.
817224	Janesville Cellular Telephone Company
802800	Joplin Cellular Telephone Company, L.P.
817230	Kenosha Cellular Telephone L.P.
802704	La Crosse Cellular Telephone Company, Inc.
802677	Lar-Tex Cellular Telephone Company, Inc.
802740	Lewiston Cell Tel Co. Partnership
817226	Madison Cellular Telephone Company
802848	Main RSA No. 4 Limited Partnership
802860	Main RSA No. 1, Inc.
802626	Manchester-Nashua Cellular Telephone, L.P.
802761	McDaniel Cellular Telephone Company
802854	Minford Cellular Telephone Company
802665	Missouri #15 Rural Cellular, Inc.
802851	NH #1 Rural Cellular, Inc.
802875	North Carolina RSA No. 6, Inc.
802818	North Carolina RSA #4, Inc.
802587	North Carolina RSA #9, Inc.
802692	Ohio RSA No. 1 Limited Partnership (For KS 15)
802690	Ohio State Cellular Phone Company (For Iowa 5)
802657	Ohio State Cellular Phone Company (For Lynchburg)
802678	Ohio State Cellular Phone Company (For NC3)
802655	Ohio State Cellular Phone Company (For Roanoke)
802767	Oregon RSA No. 2 Limited Partnership
802770	Oregon RSA No. 3 Limited Partnership
802794	Peace Valley Cellular Telephone Company
817232	Racine Cellular Telephone Company
817234	Sheboygan Cellular Telephone Company, Inc.
802716	Tennessee RSA No. 3 Limited Partnership
802722	Tennessee RSA #4 Sub 2, Inc.
802849	Texahoma Cellular L.P.
802602	Texas #20 Rural Cellular, Inc.
802797	United States Cellular Operating Company of Columbia
802629	United States Cellular Operating Company of Des Moines
802758	United States Cellular Operating Company of Medford
802734	United States Cellular Operating Company of Richland
812028	United States Cellular Operating Company (for IN-8)
816678	United States Cellular Operating Company (for W1-10)
816046	United States Cellular Operating Company (for W1-8)

815650	United States Cellular Operating Company (for W1-9)
816684	United States Cellular Operating Company (Milwaukee)
802833	United States Cellular Telephone Company (Greater Knoxville L.P.)
802809	United States Cellular Telephone Company (Greater Tulsa L.L.C.)
802857	USCOC of Corpus Christi, Inc.
802685	USCOC of Cumberland, Inc.
802773	USCOC of Hawaii 3, Inc.
802673	USCOC of Idaho RSA #5, Inc.
802668	USCOC of Illinois RSA #1, Inc.
802586	USCOC of Illinois RSA #4, Inc.
802687	USCOC of Iowa RSA #16, Inc.
802662	USCOC of Iowa RSA #1, Inc.
802672	USCOC of Missouri RSA #13, Inc.
802653	USCOC of Missouri RSA #3, Inc.
802621	USCOC of New Hampshire RSA #2, Inc.
802866	USCOC of North Carolina RSA #7, Inc.
802863	USCOC of Oklahoma RSA #10, Inc.
802785	USCOC of Oregon RSA #5, Inc.
802611	USCOC of Pennsylvania RSA #10-B2, Inc.
802731	USCOC of South Carolina RSA #4, Inc.
802654	USCOC of Tallahassee, Inc.
802679	USCOC of Virginia RSA #2, Inc.
807699	USCOC of Virginia RSA #3, Inc.
802764	USCOC of Washington – 4, Inc.
817228	USOC of Rockford, Inc.
802623	Vermont RSA #2-B2, Inc.
802735	Victoria Cellular Corporation
802878	Virginia RSA #4, Inc.
802869	Virginia RSA #7, Inc.
802752	Waterloo Cedar Falls CellTelCo
802839	Wausau Cellular Telephone Company L.P.
802779	Western Sub – RSA Limited Partnership
818128	Wilmington Cellular Telephone Co.
802709	Wisconsin RSA #7, Inc.
802737	Yakima MSA Limited Partnership

(2) Contact Information

Questions regarding this report should be directed to:

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E911 Phase II Location Technology Information

(1) Type of Technology

USCC plans to deploy a handset-based GPS solution for phase II E911 service throughout its network.

Currently, when a wireless customer dials 911, USCC delivers the customer's ten digit mobile directory number and a physical description of the sector location of the caller to the PSAP via Xypoint. Assuming that USCC's contractual relationship with Xypoint continues, USCC expects to provide phase II location information utilizing a handset based solution as follows: Upon receiving an E911 call from USCC's network, Xypoint will query a position determining element (PDE) to be installed on USCC's network through dedicated control circuits. These PDEs will be located at various points on USCC's network. The PDEs will communicate with the location determining element on the mobile phone to obtain the latitude and longitude of the caller. Xypoint will use the longitude and latitude of the caller to determine the emergency services zone (ESZ) where the caller is located and assign a routing number to the call. Xypoint will simultaneously update the location information on the call in the Automatic Location Identification (ALI) database. The routing data will then be sent from Xypoint to USCC, which will relay the data to the local exchange carrier (LEC). Using the routing

information, the LEC will send the call to the appropriate PSAP. The PSAP will then query the ALI database, and obtain the caller's precise location.

USCC will require assistance from several vendors in order to deploy a handset based solution for phase II location information in a timely manner. USCC currently purchases handsets from several vendors, none of which has available a phase II GPS equipped handset at this time. Based on responses to recent inquiries made by USCC, Nokia, Motorola, Audiovox, and Ericsson expect to manufacture phase II compliant handsets for TDMA and CDMA systems, while Kyocera only expects to manufacture handsets for CDMA systems. Nokia has informally indicated that it plans to have a GPS equipped handset on the market by the second half of 2001. Assuming that they receive a sufficient supply of Qualcomm's new GPS compliant MSM 5100 chips, Kyocera and Audiovox have preliminarily indicated that they could have phase II compliant handsets available in the third quarter of 2001. No other vendor has provided a timetable for the availability of GPS equipped handsets.

At this time, USCC has identified two potential vendors for manufacturing and installing PDEs on its network – Nortel and SnapTrack. The number of PDEs required is based upon the capacity of the particular equipment – capacity which can only be determined with finality when the equipment becomes available. In addition, USCC's Nortel switches on its network will require software upgrades to accommodate the interface with the PDEs. Nortel apparently indicated in a recent conference call with the FCC staff that it was unlikely that Nortel could complete testing and verification of its version of PDE hardware and switch upgrade software by October 1, 2001. See Nortel Networks Ex Parte Letter from Raymond L. Strassburger, Vice-President, Global Government Relations, dated September 26, 2000. Finally,

once the location and number of PDEs has been determined, USCC and Xypoint must install control circuits to enable Xypoint to communicate with the PDEs on USCC's network.

(2) Testing and Verification

Several years ago, USCC participated in a trial of a Tendler Cellular ("Tendler") GPS prototype that consisted of a wholly separate GPS capable node attached to the body of an ordinary cell phone. This testing, which predated the creation of formal location compliance testing standards, was conducted to determine if a GPS handset solution was even possible. While many problems were identified in the implementation of the very crude Tendler system, the GPS component did produce reliable location information. Recently, Tendler has represented to USCC that it has manufactured a GPS capable node that emits audio and touch tone location information over a wireless telephone line when activated by a user prior to dialing 911. There appear to be a number of reliability and implementation problems with this proposed Tendler solution, not the least of which is that every PSAP would be required to buy new equipment to electronically record the GPS location information. Tendler has indicated that it presently has no offers to include this device in a mobile phone.

As noted previously, none of USCC's handset vendors have GPS equipped handsets currently available for testing. Nokia has informally indicated that it anticipates having a GPS handset available for testing in TDMA markets in the second half of 2001. Kyocera and Audiovox have informally indicated that phase II compliant handsets could be available sometime in the third quarter of 2001, assuming sufficient availability of the Qualcomm MSM 5100 chip set. USCC stands ready to test any phase II prototype handset upon availability from any of its vendors.

Any testing USCC engages in will ultimately follow the testing methods delineated in OET Bulletin 71. Furthermore, the CDMA Development Group (CDG) has issued guidelines for evaluating location determination technologies that will be followed by USCC in testing available equipment where those guidelines do not contradict OET's guidelines.

(3) Implementation Details and Schedule

USCC's strategy and schedule for the installation of required hardware and software necessary to implement its handset based solution is contingent upon the progress made by its vendors in manufacturing and distributing the necessary equipment. USCC has requested target dates from these manufacturers for the delivery and installation of necessary equipment and/or software.

At this time, no vendor has provided USCC with a phase II, GPS capable handset. Nokia has indicated that it plans to have a phase II compliant, GPS equipped TDMA handset on the market by the second half of 2001. Kyocera and Audiovox have preliminarily indicated that a GPS compliant handset could be available sometime in the third quarter of 2001. No other vendor has provided a timetable for the availability of GPS equipped handsets. In addition, USCC has identified at this time two potential vendors for manufacturing and installing PDEs on its network – Nortel and SnapTrack. Nortel's switches on USCC's network will also require software upgrades to interface with the PDE. Nortel apparently indicated in a recent conference call with the FCC staff that it was unlikely that Nortel could complete testing and verification of its version of PDE hardware and switch upgrade software by October 1, 2001. See Nortel Networks Ex Parte Letter from Raymond L. Strassburger, Vice-President, Global Government Relations, dated September 26, 2000. Finally, once the PDEs are installed, USCC and Xypoint plan to install control circuits enabling communication between Xypoint and the PDEs.

(4) PSAP Interface

At this time, USCC has a contract with Xypoint Corporation to interface with PSAPs on its behalf, including the provision of phase II location information. Assuming this contractual relationship is extended, several hardware and software updates to equipment in USCC's network are required to transmit phase II location data to PSAPs. First, as noted, PDEs must be installed, as well as control circuits to allow communication between the PDEs and Xypoint. These PDEs are necessary to communicate with the GPS element in the phase II compliant handsets in order to obtain the latitude and longitude corresponding to the handset's location. Once these PDEs and control circuits are incorporated in USCC's network, according to Xypoint, no additional hardware or software upgrades are required to enable Xypoint to provide coordinate information in the ALI database that is accessed by the PSAPs. However, USCC understands that modifications to the software utilized by the PSAPs to access the ALI database may be necessary to allow the PSAP to accept and utilize phase II location information.

(5) Existing Handsets

USCC anticipates that non-ALI compliant handsets will be replaced primarily through natural attrition. In order to replace existing, non-compatible handsets, USCC anticipates developing a plan based upon its experience in deploying and selling new ALI compliant handsets once they become available. USCC expects to implement marketing plans designed to encourage widespread distribution of phase II compliant handsets in areas in which PSAPs can handle phase II information.

(6) Location of Non-Compatible Handsets

Handsets that are incompatible with USCC's system will default to phase I information. Specifically, the PSAP will be given the cell site receiving the call, a physical description of the area, and the ten digit mobile telephone number.

(7) Other Information

To date, USCC has received two requests for phase II E911 service. On July 28, 2000, the Peoria County Emergency Telephone System Board, Peoria, Illinois, submitted a request to USCC to begin negotiations over the acceptance of both phase I and phase II wireless 911 calls. On August 9, 2000, the Tazewell County Emergency Telephone System Board, East Peoria, Illinois, submitted a similar request to USCC.